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It is shown that the water in the vascular bundles in the stems of tall trees, when not subjected to pressure upwards from below, must be in a state of tension. "Therefore when root pressure is not acting and when the leaves of trees are transpiring, the cohesion of their sap explains fully the transmission of the tension downwards, and consequently explains the rise of the sap." For example, in a tree 100 meters high there results a tension of 20 atmospheres, but the cohesion of sap has been experimentally shown to be at least 200 atmospheres; therefore it "is in no way taxed by this tension."

The author finally points out that, in such tall trees, the osmotic pressure, necessary to keep the cells in the mesophyll turgid, must equal in magnitude the tensions necessary to raise the sap; and that "the stored energy set free by respiration in leaves is quite sufficient to do the work of secretion against the resistance of the transpiration stream; while, when the vapor pressure of water in the surrounding space is low, and when evaporation is doing the work of raising the sap, the expenditure of energy in this process will reduce the quantity of water evaporated only by an imperceptible amount."

C. STUART GAGER.

NEWS ITEMS

Ernst Ule died on July 15 in Berlin-Lichterfelder after a short illness at the age of 61 years. He was known chiefly for his exploration of the Brazilian flora.

Professor T. D. A. Cockerell is anxious to get living material of *Helianthus*, from eastern and southern United States. Those who could collect such material will confer a favor by writing to Professor Cockerell at Boulder, Colorado.

Dr. H. S. Jackson, professor of botany and plant pathology at the Oregon Agricultural College, has accepted the position of chief in botany at Purdue University Experiment Station, beginning Sept. 1, 1915. He will be succeeded by H. P. Barss, formerly associate professor of botany and plant pathology at the Oregon Agricultural College and Experiment Station, *Genetics* is the name of a new journal to be issued by the Princeton University Press for the publication of research papers on heredity and allied subjects. This journal will be a bimonthly, aggregating about 600 pages per annual volume, and the subscription price is $6 per volume. Adequate illustration will be aimed at, but will be attainable only with the cooperation of all those interested in genetics. All such are cordially invited to subscribe. On the editorial board are W. E. Castle, E. G. Conklin, B. M. Davis, C. B. Davenport, E. M. East, R. A. Emerson, T. H. Morgan, H. S. Jennings, Raymond Pearl, and G. H. Shull. Manuscripts and all editorial correspondence should be addressed to the managing editor, Dr. Geo. H. Shull, 60 Jefferson Road, Princeton, N, J., and all business correspondence to the Princeton University Press.

We learn from *Secince* that Professor J. C. Arthur, who has been in college and experiment-station work for nearly forty years, and for the last twenty-eight years has held the chair of professor of vegetable physiology and pathology in Purdue University and chief of the botanical department of the Indiana Agricultural Experiment Station, retired on the first of September to become professor emeritus of botany in the same institution under the provisions of the Carnegie Foundation. He will continue the researches on plant rusts which have been in progress for a number of years.

Dr. Chas. H. Otis, for the past two years instructor in botany in the College of Arts and Sciences of Cornell University, has accepted a position in the botanical department and experiment station of the New Hampshire College.

Dr. J. J. T. Quensel, professor of pathological anatomy at the University of Upsala, has died at the age of seventy years.